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Alabama Power
the southern electric system

April 15, 1983

Docket Nos. 50-348
50-364

Director, Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Mr. S. A. Varga

Joseph M. Farley Nuclear Plant - Units 1 and 2
NRC Generic Letter 82-33, "Supplement 1 to NUREG-0737 - Requirements for Emergency Response Capability", Dated December 17, 1982

Gentlemen:

On December 30, 1982, Alabama Power Company received NRC Generic Letter 82-33, "Supplement 1 to NUREG-0737 - Requirements for Emergency Response Capability", dated December 17, 1982. This Generic Letter transmitted NUREG-0737, Supplement 1 which provided additional clarification regarding Safety Parameter Display Systems, Detailed Control Room Design Reviews, Regulatory Guide 1.97 (Revision 2), Upgrade of Emergency Operating Procedures and Emergency Response Facilities. Additionally, Generic Letter 82-33 requested that Alabama Power Company provide a proposed schedule for completing each of the basic provisions of Supplement 1 to NUREG-0737 as well as plans for their phased implementation and integration. Alabama Power Company has evaluated the basic provisions and clarifications of Generic Letter 82-33 and has developed the Preliminary Farley ERC Integrated Implementation Plan and Schedule discussed herein.

A003

ADD: W. Paulson

Background

In Alabama Power Company's letter dated November 16, 1981 (Attachment 1), the impact of the overlapping provisions of existing NUREGs, Regulatory Guides and additional NRC guidance (some of which was in draft form) was discussed. Alabama Power Company's position was that the finalization of all NRC guidance was necessary in order to implement an integrated system to enhance the present emergency response capabilities at the Farley Nuclear Plant. The implementation of an integrated system prior to finalization of the additional draft NRC guidance could have resulted in expenditures for unnecessary future modifications. It was intended that the integrated system address previous Alabama Power Company commitments as well as the additional NRC guidance that was anticipated. Consequently, Alabama Power Company committed to provide the NRC with an implementation plan and schedule

for the installation of an integrated system upon the finalization of the NRC criteria for emergency response capabilities. This matter was discussed by Mr. R. P. McDonald of Alabama Power Company and Messrs. V. Stello, H. R. Denton and D. G. Eisenhut of the NRC Staff prior to the issuance of the November 16, 1981 letter.

Since the issuance of this letter, finalized NRC criteria associated with emergency response capabilities has been provided in Supplement 1 to NUREG-0737. Alabama Power Company believes that an integrated system to enhance the present emergency response capabilities at Farley Nuclear Plant can now be developed.

Preliminary Integrated Implementation Plan and Schedule

To obtain the information necessary to develop the Preliminary Farley ERC Integrated Plan and Schedule, Alabama Power Company is actively participating in the Nuclear Utility Task Action Committees (NUTAC's) and the Westinghouse Owners Group. The Nuclear Utility Task Action Committee on Emergency Response Capabilities (ERC NUTAC) is an industry group formed by more than 40 utilities to specifically address the basic provisions of Supplement 1, to NUREG-0737. The ERC NUTAC has developed a draft ideal integration plan which is scheduled to be published by June 1983. This draft ERC NUTAC integration plan, described in Attachment 2, provides for total integration of the basic NUREG-0737, Supplement 1 provisions; however, it is ideal since it does not consider previously completed work or other commitments made by Alabama Power Company. The ability to integrate plant-specific work and previous commitments is within the framework of the draft ERC NUTAC integration plan. Taking into account previously completed work and commitments made by Alabama Power Company, the concepts of the draft ERC NUTAC integration plan were used in developing the Preliminary Farley ERC Integrated Implementation Plan and Schedule. In addition, industry-originated guidance has been utilized in developing the Preliminary Farley ERC Integrated Implementation Plan and Schedule. A summary of the applicable industry-originated guidance is included as Attachment 3.

The Preliminary Farley ERC Integration Implementation Plan and Schedule is described in Attachment 4. It includes a schedule which graphically displays the timetable for completing actions associated with each of the basic NUREG-0737 Supplement 1 provisions as well as their integration and interface. For activities dependent on past completed work and for which sufficient planning and evaluation has been performed, calendar dates are provided. Typically, dates have been given for key activities scheduled during 1983. For activities beyond 1983 for which sufficient final information is not available, durations were estimated based on certain assumptions. These assumptions include 18-month refueling cycles, 6-week refueling outages, current refueling outage schedules, and completion of previously committed activities. The identified 1983 milestones and submittals are considered firm while

the remainder of the schedule is preliminary and is provided only to illustrate the current planning. The Preliminary Farley ERC Integrated Implementation Plan and Schedule discusses the status of completed activities associated with the basic provisions of NUREG-0737, Supplement 1. In addition, the adequacy of the existing emergency response capabilities at the Farley Nuclear Plant during the interval to implement the modifications for the enhancement of these existing capabilities is also discussed. As shown in the schedule, SPDS implementation is the primary activity with which other initiatives must integrate. The complete installation of the ERC integrated system is scheduled for no later than the 8th refueling outage (October 1988) on Unit 1 and no later than the 5th refueling outage (June 1988) on Unit 2. Alabama Power Company recognizes the value of the enhancements to be provided by the ERC integrated system and desires to expedite the implementation schedule; therefore, a goal to complete implementation in approximately three and one-half years has been set.

Alabama Power Company developed the Preliminary Farley ERC Integrated Implementaion Plan and Schedule considering those known activities whose performance may contribute to a fully integrated, cost-effective and safely implemented ERC integrated system. These schedules and durations are based on the installation of certain physical modifications during the cold shutdown mode of refueling outages. During the implementation of this project, it will be determined how the overall schedule can be shortened. It is anticipated that schedule advancements may be obtained by reducing the duration to complete some activities, deleting or altering the scope of the identified activites or manipulating the sequence in which these activities would be performed. Alabama Power Company is anxious to advance the installation and operational dates shown therein and will make every reasonable effort to do so.

It should be noted that a significant portion of these activities will affect safety-related equipment, including equipment necessary to obtain and maintain a cold shutdown condition. To ensure that no ERC modification degrades the present emergency response capabilities at Farley Nuclear Plant, Alabama Power Company will take all steps necessary to provide for safe implementation of the ERC integrated system.

As discussed, the completion of a final integrated plan and schedule is not possible at this time. Such a final plan and schedule requires the determination of the scope, duration, coordination and identity of the necessary activities to comply with NUREG-0737, Supplement 1 provisions. This determination requires:

- selection of vendors
- determination of vendor and utility responsibilities
- determination of bills of material

- establishment of equipment and procurement lead-times
- determination of the duration of vendor engineering and services
- estimations of the duration of NRC review and approval of Alabama Power Company submittals
- issuance of the aforementioned pending industry guidance documents
- determination of the scheduling impact of all licensing commitments and other plant initiatives
- determination of plant-specific design that may only be obtained during outages of sufficient duration (i.e., walkdown)
- determination of the impact of the NUREG-0737, Supplement 1 activities on each other (e.g., CRDR impact on SPDS)

The information regarding these activities can not be obtained at this time and, in many instances, the required interfaces with organizations, such as vendors and the NRC Staff, are beyond the reasonable control of Alabama Power Company.

Conclusion

Alabama Power Company will provide an update to the Preliminary Farley ERC Integrated Implementation Plan and Schedule by December 15, 1983 based on completion of scheduled activities, further planning, completion of conceptual design, and schedule advancements made as a result of our goal to implement the ERC integrated system in approximately three and one-half years. Alabama Power Company desires to work with the NRC Farley Nuclear Plant Project Manager, Mr. E. A. Reeves, and other members of the NRC Staff to discuss the Preliminary Farley ERC Integrated Implementation Plan and Schedule in order to assure implementation of emergency response activities within a reasonable timeframe and to assure the optimization of the resources of both organizations.

The provisions of NUREG-0737, Supplement 1 are to enhance the present emergency response capabilities and are not intended to provide the sole safety function. As described in Attachment 4, the present emergency response capabilities at Farley Nuclear Plant are adequate during the implementation of modifications to enhance these capabilities. These present capabilities consist of fully operational Emergency Response Facilities; upgraded emergency operating procedures that incorporate post-TMI recommendations; a plant computer and main control board instrumentation to monitor critical safety functions and plant parameters; and a control room that has been modified for human

engineering discrepancies identified during a Control Room Human Factors and Operations Review. Consequently, the safe operation of Farley Nuclear Plant - Units 1 and 2 will not be jeopardized during the interval required to develop and implement an integrated system for the enhancement of the present emergency response capabilities.

Alabama Power Company believes that the undertaking of the initiatives described in this letter is a demonstration of a good-faith effort to meet or exceed the NRC guidance now provided in Supplement 1 to NUREG-0737.

If there are any questions regarding this matter, please advise.

Yours very truly,

F. L. Clayton, Jr.

SWORN TO AND SUBSCRIBED BEFORE ME
THIS 15th DAY OF April, 1983

Robert W. Stewart
NOTARY PUBLIC

My Commission Expires: 10/22/85

FLCJr/MAL:lsh-D18
Attachments
cc: Mr. R. A. Thomas
Mr. G. F. Trowbridge
Mr. J. P. O'Reilly
Mr. E. A. Reeves
Mr. W. H. Bradford

ATTACHMENT 1

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F. L. Clayton, Jr.
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the southern electric system

November 16, 1981

Docket Nos. 50-348
50-364

Director of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Mr. S. A. Varga

Gentlemen:

Alabama Power Company Commitments
Relating to R. G. 1.97 Rev. 2, NUREG-0696
and NUREG-0700

As a part of the Unit 2 licensing process, Alabama Power Company committed to address several new requirements. These requirements included NUREG-0696,"Functional Criteria For Emergency Response Facilities"; Regulatory Guide (R.G.) 1.97,"Instrumentation For Light Water Cooled Nuclear Power Plants to Access Plant and Environs Conditions During and Following An Accident"; and NUREG-0700,"Guidelines For Control Room Design Reviews".

The NRC Safety Evaluation Report for Farley Nuclear Plant (FNP) dated March 19, 1981 required Alabama Power Company to address compliance with NUREG-0696 after its issuance. To address the requirements of NUREG-0696, a Task Force was established upon NUREG issuance. A review of applicable vendors was conducted to determine available systems complying with the requirements. A specification was submitted to qualified vendors. These vendors submitted proposals that have been reviewed by the Task Force. By letter dated May 19, 1981 Alabama Power Company committed to develop a system which addresses these criteria but took exception to the required in-service date of October, 1982. Alabama Power Company committed to provide the NRC with a completion schedule upon award of contract.

The FNP-2 Full Power License, Item 2.c.(20), requires th t a schedule be submitted to the NRC, prior to April 30, 1981, for bringing the facility into compliance with Revision 2 of R.G. 1.97. On March 30, 1981, Alabama Power Company committed to make every effort to complete this program by June, 1983 with potential reasons for slippage of this date being equipment delivery and/or time for installation and checkout. The March 30, 1981 submittal included a schedule for completing each phase of the project. This schedule provided for submittal of Alabama Power Company's detail implementation plan by October, 1981. During the R.G. 1.97 review of FNP instrumentation, Alabama Power Company developed a licensing basis and recommended hardware configuration.

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By letter of January 14, 1981, Alabama Power Company committed to address the detailed control room design review after issuance of NUREG-0700. NUREG-0700 was issued in September, 1981 and Alabama Power Company is in process of reviewing this NUREG and developing an implementation plan.

Due to the overlapping requirements of R.G. 1.97 and NUREG 0696, implementation of an integrated system to meet both requirements was planned. A contract for this integrated system was scheduled for execution in November, 1981. In the last few weeks, Alabama Power Company has become aware of additional draft NUREGs which affect design, implementation and display of the proposed integrated system. These draft NUREGs include NUREG-0801, "Evaluation Criteria For Detailed Control Room Design Review"; NUREG-0799,"Draft Criteria For Preparation of Emergency Operating Procedures"; NUREG-0814,"Methodology For Evaluation of Emergency Response Facilities"; and NUREG-0835,"Human Factors Acceptance Criteria For the Safety Parameter Display System". These NUREGs are currently in draft form and have been issued for comments.

To enable Alabama Power Company to implement an integrated system which addresses existing commitments (NUREG-0696, R. G. 1.97 and NUREG-0700) in a manner that will be consistent with criteria currently in review (draft NUREGs), such new criteria must be finalized by the NRC and included in the design basis of the Farley system to preclude unnecessary future modifications.

Mr. R. P. McDonald contacted Messrs. Victor Stello, H. R. Denton, and D. G. Eisenhut of the NRC staff to discuss the potential impact of the draft NUREGs on the planned integrated system for Farley. From these discussions it was determined that Alabama Power Company should not expend significant funds until the regulatory requirements were finalized and that Alabama Power Company should document concerns due to lack of finalized criteria and their impact on system design and implementation.

In order that an integrated system be developed which addresses all of the above NRC Criteria, Alabama Power Company proposes that a design be finalized after the draft NUREGs are finalized. Upon finalization of these criteria, Alabama Power Company will provide an implementation plan and schedule, agreeable to the NRC, for design and implementation of this integrated system. Accordingly, Alabama Power Company respectfully requests that appropriate licensing requirements and associated letters of commitment be revised to reflect this approach.

Alabama Power Company is prepared to meet with the NRC Staff to discuss this proposal.

Yours truly,

F. L. Clayton, Jr.

FLCJr/RLG:awm

cc: Mr. H. R. Denton
Mr. Victor Stello
Mr. D. G. Eisenhut
Mr. R. A. Thomas
Mr. G. F. Trowbridge
Mr. J. P. O'Reilly
Mr. E. A. Reeves
Mr. W. H. Bradford

ATTACHMENT 2

SUMMARY OF THE DRAFT ERC NUTAC GUIDELINES FOR AN INTEGRATED IMPLEMENTATION PLAN

INTRODUCTION

A subcommittee of the NUTAC on emergency response capabilities was formed to provide industry guidance to utilities for the development of an integrated implementation plan that addresses the provisions of NUREG-0737, Supplement 1. The method developed to integrate these provisions is shown in Figure 1. Recognizing the different stages of compliance to the individual ERC requirements, the method shown in Figure 1 assumes no work has been accomplished. However, after determining individual plant status, each utility can apply the method to prepare the plant-specific implementation plans required by the NRC.

Figure 1 is divided into basic steps that should be considered in development of an integrated, plant-specific implementation plan. Each step and its relation to previous and succeeding steps is discussed in the following plan descriptions.

EOP PLAN

The EOP plan consists of those tasks that will provide a documented method for developing, utilizing, revising and controlling emergency operating procedures.

This plan will include defining source documents, determining manpower requirements, establishing a schedule and specifying a method of document control. This plan will also define the interfaces with other ERC elements to ensure complete integration.

Plant-specific EOPs are developed by utilities for the purpose of mitigating the consequences of a broad range of initiating events and subsequent multiple failures or operator errors, without the need to diagnose a specific event. These procedures are function-oriented and written with human factors consideration given to aspects to improve human reliability. These EOPs are based upon a writer's guide, NSSS generic technical guidelines and a plant-specific task analysis.

Determination of procedure adequacy is dependent upon the trained operator's needs. EOPs should be checked for completeness, understandability, technical correctness, usability and compatability with the control room. A walkthrough of the EOPs provides a method of evaluating these criteria. A utility may choose to perform an EOP walkthrough in the control room, in a simulator, in a mockup of their control room or any combination of the three. Although Figure 1 indicates only one EOP walkthrough, this process should be repeated following any major modification to the EOPs.

Plant-specific EOPs should be incorporated in an iterative process with the resolution of control room HEDs, specific utility application of R.G. 1.97 recommendations, SPDS design bases and emergency response facility criteria. This iteration process should be used to determine modifications that can be made easily to the EOPs to accomodate deficiencies in other areas without impacting the effectiveness of the EOPs. For this iterative process to be most effective, all of the elements

that impact EOPs should be available at the same time. However, due to economics, manpower limitations or vendor restrictions, this may not be possible. To accommodate this situation and to ensure effective EOPs, a utility should consider performing the iteration between EOPs and the other impacting elements as soon as each one has been developed.

CRDR PLAN

The CRDR program plan is the first step toward performing a CRDR and provides a method for performing the entire review.

The operating experience review is performed to identify any operational problems resulting from design discrepancies or to identify any improvements to the control room that would enhance the ability of an operator to respond to an emergency condition.

In performing the CRDR, accepted human factors guidelines should be used. Good human engineering practices should be incorporated in any control room design since the operator must interface with this equipment under emergency, as well as normal, conditions.

The control room survey should utilize results from the EOP walkthrough. This survey should include, among other things, an assessment of control room layout, the control room environment, the usefulness of audible and visual alarms, the readability of displays, the adequacy of instrumentation, and information recording and recall capabilities.

The operators tasks and informational requirements are validated by the EOP walkthrough and provide input criteria to the control room survey process.

Control room additions associated with parameter display (e.g., SPDS) and incorporation of selected R.G. 1.97 recommendations should be considered during the CRDR.

The control room improvements should be coordinated with changes resulting from the EOP, R.G. 1.97, SPDS and ERF programs.

R.G. 1.97 ELEMENT

The R.G. 1.97 plan provides administrative guidance required to assess and document all aspects of R.G. 1.97 consideration. A complete set of design criteria is developed from the plan to form a basis for plant-specific instrument selection. Utilizing this design criteria, as well as the post-accident instrumentation requirements identified from the CRDR task analysis, a plant-specific list of accident-monitoring instrumentation, qualification criteria and locations is developed. The plant-specific list also provides feedback to the control room survey

and SPDS design basis. ERF design criteria provides additional input to the plant list. Once the list is finalized in design, an iterative process occurs to consider changes associated with EOPs, control room improvements, SPDS design and ERF design.

SPDS PLAN

The SPDS plan describes the tasks for developing, revising, assessing and implementing the safety parameter display system design bases and a method for documenting these efforts on a plant-specific basis.

The plan should provide a description of each task involved and administrative guidance required to perform the tasks, including defining source documents, determining manpower requirements, specifying vendor involvement, establishing a schedule, and specifying a method of display configuration. Interfaces with other NUREG-0737, Supplement 1 elements should be clearly defined to ensure complete integration.

The document provided by the SPDS NUTAC entitled, Guidelines For An Effective Safety Parameter Display System Implementation Program, provides human factors guidance criteria for an SPDS, as well as guidance for other factors that influence usability.

A plant-specific list of human factors criteria pertaining to the SPDS should be developed as a basis for developing and assessing plant-specific SPDS designs. This list of criteria may be developed in conjunction with the human factors criteria required as input for the performance of a control room survey.

The EOPs, as a result of the efforts performed by the NSSS owners groups and plant-specific considerations, specify the critical safety functions for a plant. The SPDS design bases should incorporate this information to allow the operator to use the SPDS, if available, in conjunction with his EOPs.

The CRDR/SPDS design basis interface may be classified as one-way or two-way, depending upon the intended use of the SPDS; i.e., the interface becomes two-way if a utility intends to resolve control board HEDs by taking credit for the information displayed by the SPDS or incorporating additional information on the SPDS.

The ERF criteria/SPDS design bases interface is classified as one-way; i.e., the SPDS design bases may be used as input in the ERF design criteria; however, the ERF design should have no direct effect on the SPDS.

The iteration interface is an ongoing process as long as HEDs exist or design changes that could impact the SPDS are made to any of the other basic NUREG-0737, Supplement 1 elements. A great deal of consideration is essential to determine modifications to the SPDS effectively without creating additional discrepancies.

To ensure an effective SPDS, the design bases should specify hardware, inputs and software, in the case of a computer-based system, and identify SPDS user(s), specify location and define availability. Design bases may vary considerably. Whereas some plants may elect to design an SPDS that serves only to aid in monitoring the critical safety functions, others may elect to incorporate additional functions into the system. In all cases, the SPDS design should consider operator usability and compatability with plant-specific EOPs.

Once the SPDS design bases have been determined, the adequacy of the design should be evaluated; however, it is preferable to peform the CRDR first, so that it may be factored into the SPDS design bases.

The EOP/SPDS design basis interface is classified as one-way; i.e., structure of the EOPs will affect the SPDS design but the SPDS design does not determine what must be included in the EOPs.

ERF PLAN

The ERF plan consists of those tasks that describe a method for designing, implementing and utilizing the emergency response facilities. The plan should be plant-specific. The following items should be considered in the development of an ERF plan:

- purpose of the TSC, EOF and OSC
- description of tasks
- source document availability
- project personnel requirements and materials needed
- manpower requirements and restrictions
- description of the design documentation required
- desired date of completion and milestones
- schedule controlling factors
- interfaces with other NUREG-0737, Supplement 1 activities

A set of criteria that provides a basis for the design or upgrade of the Technical Support Center (TSC), Emergency Operating Facility (EOF) and Operational Support Center (OSC) needs to be determined. The bases for these criteria should include utility emergency plans and guidance provided by nuclear industry organizations. Plant-specific criteria should include, but not be limited to, the following information:

- purpose
- location
- required instrumentation (not required for OSC)
- habitability (not required for OSC)
- communications needs
- structural considerations (not required for OSC)
- size
- human factors consideratons (not required for OSC)
- staffing needs

Guidance provided by the ERC NUTAC should provide assistance in the development of this criteria.

A set of criteria that provides a basis for identifying non-utility or utility off-site interactions that have an impact on the emergency response facilities should be developed to provide the following:

- interactions with state and local government
- communications required between plant and utility headquarters
- resources required from utility headquarters
- emergency capabilities supported by NSSS vendors, A/Es and medical facilities
- non-utility personnel located in the ERF during emergency conditions

A set of criteria that provides a basis for ensuring the integration of the TSC, OSC, EOF and off-site facilities and consideration of the initial SPDS design bases should be developed.

The ERF criteria should be included in an iterative process with other activities of NUREG-0737, Supplement 1. These include control room improvements, plant-specific EOPs, specific R.G. 1.97 application and SPDS design. This iterative process should continue until all of the activities associated with ERF criteria have been completed. A final set of criteria used to build or upgrade emergency response facilities should be developed, based on the preceeding considerations.

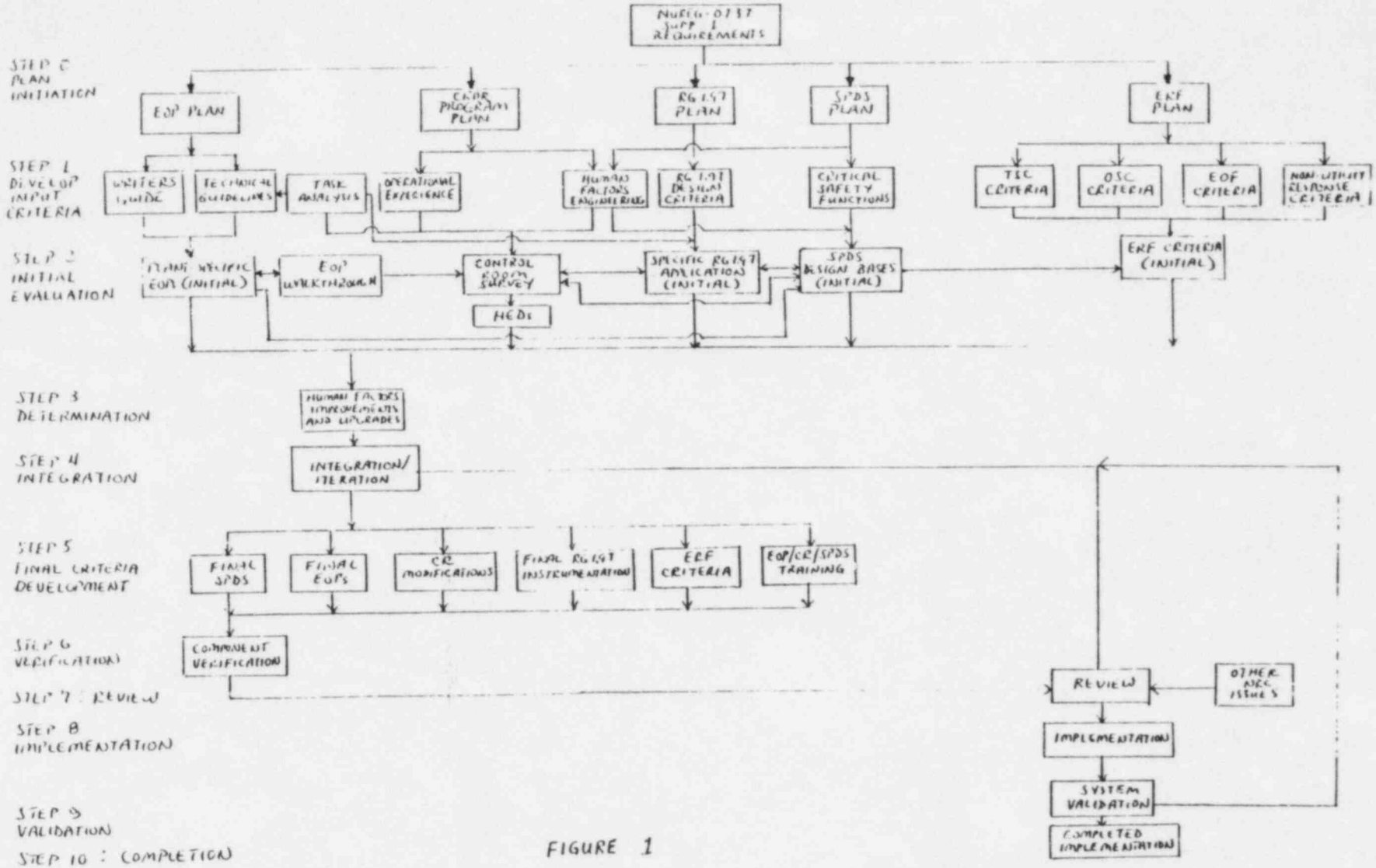
NUREG-0737 SUPP 1 REQUIREMENTS
STEP 0 PLAN INITIATION
EOP PLAN
CR DR PROGRAM PLAN
RG 1.97 PLAN
SPDS PLAN
ERF PLAN
STEP 1 DEVELOP INPUT CRITERIA
WRITERS GUIDE
TECHNICAL GUIDELINES
TASK ANALYSIS
OPERATIONAL EXPERIENCE
HUMAN FACTORS ENGINEERING
RG 1.97 DESIGN CRITERIA
CRITICAL SAFETY FUNCTIONS
TSC CRITERIA
OSC CRITERIA
EOF CRITERIA
NON-UTILITY RESPONSE CRITERIA
STEP 2 INITIAL EVALUATION
PLANT SPECIFIC EOPS (INITIAL)
EOP WALKTHROUGH
CONTROL ROOM SURVEY
HEDs
SPECIFIC RG 1.97 APPLICATION (INITIAL)
SPDS DESIGN BASES (INITIAL)
ERF CRITERIA (INITIAL)
STEP 3 DETERMINATION
HUMAN FACTORS IMPROVEMENTS AND UPGRADES
STEP 4 INTEGRATION
INTEGRATION/ ITERATION
STEP 5 FINAL CRITERIA DEVELOPMENT
FINAL SPDS
FINAL EOPS
CR MODIFICATIONS
FINAL RG 1.97 INSTRUMENTATION
ERF CRITERIA
EOP/CR/SPDS TRAINING
STEP 6 VERIFICATION
COMPONENT VERIFICATION
STEP 7 : REVIEW
REVIEW
OTHER NRC ISSUES
STEP 8 IMPLEMENTATION
IMPLEMENTATION
STEP 9 VALIDATION
SYSTEM VALIDATION
STEP 10 : COMPLETION
COMPLETED IMPLEMENTATION

FIGURE 1

ATTACHMENT 3

DESCRIPTION OF GUIDELINES AND INPUT CRITERIA DEVELOPED
BY INDUSTRY GROUPS

INDEX OF GUIDELINES AND INPUT CRITERIA

1. Emergency Operating Procedures Plan

   a. General Guidelines

      i. Emergency Operating Procedures Implementation Guidelines (INPO 82-016), published June 1982

      ii. Emergency Operating Procedure Writing Guideline (INPO 82-017), published July 1982

      iii. Emergency Operating Procedures Verification Guidelines, scheduled to be published April 1983

      iv. Emergency Operating Procedures Validation Guidelines, scheduled to be published June 1983

      v. Westinghouse Owners Group "Emergency Procedure Guidelines, Rev. 0," issued 08-14-81, 08-27-81, 12-02-81, 01-04-83, 01-13-83. The Rev. 1 upgrade of this document is scheduled to be issued in August 1983.

      vi. Emergency Operating Procedures Generation Package Guidelines (INPO 83-007), published February 1983.

   b. Input Criteria

      i. Writers guide

      ii. Generic technical guidelines

      iii. Task analysis

2. Control Room Design Review Program Plan

   a. General Guidelines

      i. NUTAC Guidance on Control Room Design Review Implementation, scheduled to be issued in June 1983

      ii. NUTAC Guidance on Control Room Design Review Survey, scheduled to be issued in June 1983

   b. Input Criteria

      i. Operating experience review

      ii. Control room survey

      iii. Human factors engineering

INDEX OF GUIDELINES AND INPUT CRITERIA

3. Regulatory Guide 1.97

   a. General Guidelines

      i. Westinghouse Design Basis to Respond to R.G. 1.97, Rev. 2

      ii. NUTAC Guidelines for Accident Monitoring Instrumentation, scheduled to be issued in June 1983

   b. Input Criteria

      i. Regulatory Guide 1.97, Rev. 2

      ii. Alabama Power Company R.G. 1.97 Design Basis, Rev. 0

      iii. Alabama Power Company R.G. 1.97 Conceptual Design Display System

4. Safety Parameter Display System Plan

   a. General Guidelines

      i. NUTAC Guidelines for an Effective SPDS Implementation Program (INPO 83-003 NUTAC), published January 1983.

   b. Input Criteria

      i. Critical safety functions

      ii. Alabama Power Company SPDS Specification and Conceptual System Design

5. Emergency Response Facilities Plan

   a. General Guidelines

      i. NUTAC Guidelines on Emergency Response Facilities, scheduled to be issued in June 1983

   b. Input Criteria

      i. TSC criteria

      ii. OSC criteria

      iii. EOF criteria

      iv. Non-utility response criteria

DESCRIPTION OF GUIDELINES AND INPUT CRITERIA

1. EOP Plan

   a. General Guidelines

      i. EOP Implementation Guideline

      This guideline presents the basic elements of an implementation plan for EOPs, starting with the receipt of the emergency operating procedure guidelines (EPGs) to provide guidance to utilities for use in plant-specific EOP implementations. The following elements are presented and discussed:

      - organization of implementation elements
      - crew and shift policy characteristics
      - procedure system and network
      - technical guideline use
      - writers guide for EOPs
      - EOP verification
      - EOP validation
      - training
      - revision, review, and approval process
      - EOP control
      - supporting documentation control
      - experience feedback

      The elements were identified and evaluated by the Emergency Operating Procedures Implementation Assistance (EOPIA) Review Group in accordance with the Activity Network described in the EOPIA Program Description (INPO 82-013). The elements presented are not to be construed as an exhaustive list and are considered to be generic to most plants and organizations. The elements should be reviewed by the utility for individual applicability and use. By review of each element present, it is felt that a cohesive and efficient implementation plan for EOPs can be developed by each utility.

      This document is offered as guidance only.

ii. EOP Writing Guideline

The purpose of this guideline is to provide information that can be used by a utility in writing or improving a plant-specific writers guide for emergency operating procedures (EOPs). The Emergency Operating Procedures Writing Guideline presents human factors principles applicable to EOPs. The principles, if applied in developing or improving a writers guide for EOPs, will help ensure readable and understandable procedures for emergency conditions.

This guideline document is organized to present informatin on human factors aspects and how to address them in writing EOPs by applying principles. For each priniciple, an explanation is provided with guidance and examples of application. In addition, a writers guide outline, example writers guide, and example emergency operating procedures are provided to show how the principles can be tied together in writing EOPs. As structured, the guideline can be reviewed, starting with either the general principles or the specific example EOP.

iii. EOP Verification Guidelines

The purpose of this guideline is to provide information that can be used by a utiltiy in developing its EOP verification program. This document provides guidance in three major areas of an EOP verification program. These are the program objectives, program evaluation criteria, and program process.

The program objective is to ensure that consistency has been maintained between the EOPs and the EOP source documents. Consistency is determined by verification principles for written correctness and technical accuracy. Written correctness ensures information is incorporated as specified by administrative guidance. Technical accuracy ensures proper incorporation of generic and plant-specific technical information.

Program evaluation criteria are used to determine if the verification principles are satisfied. This document provides guidance for the development of plant-specific evaluation criteria. Sample evaluation criteria are provided for each verification principle.

The program process supports the actual comparative evaluation. This document divides the process by phases: preparation, verification, resolution and documentation. Guidance is provided for each of these process phases, along with a sample verification procedure.

This document is presented for guidance only. Its program is not intended to duplicate efforts in existing EOP review and approval processes. EOP verification as presented in this document is a comparative evaluation that addresses whether the EOPs are written correctly and are technically accurate. The evaluation of whether the EOP information is usable and operationally correct is addressed during the EOP validation.

iv. EOP Validation Guidelines

The purpose of this guideline is to provide information that can be used by a utility in developed its emergency operating procedures (EOPs) validation program. This document provides guidance in three major areas of EOP validation program. These areas are the program objective, program evaluation criteria, and program process.

The program objective is to determine if the trained operating shift can manage emergency conditions with EOPs. This determination is made by validation principles for operational correctness and usability. Operational correctness ensures that EOPs are compatible with plant responses, plant hardware, and the operating shift. Usability ensures that the EOPs provide suffient and understandable operator information.

The program evaluation criteria are used to determine if the validation principles are satisified. This document provides guidance for the development of plant-specific evaluation criteria. Sample evaluation criteria are provided for each validation principle.

This program process supports the actual performance evaluation. This document divides the process by phases: preparation, validation resolution, and documentation. Guidance is provided for each of these phases, along with sample procedure for each validation method.

This document is presented as guidance only. Its program is not intended to duplicate efforts in existing EOP review and approval processes. EOP validation as presented in this document is a performance evaluation that addresses whether the EOPs are operationally correct and usable. The evaluation of

whether or not the EOP information is written correctly and technically accurate is made during EOP verification.

v. Westinghouse Owners Group Emergency Procedures Guidelines

This document was submitted to the NRC, so a summary is not provided here. The Rev. 1 Upgrade of this document is scheduled to be issued in August 1983 following acceptance by the Westinghouse Owners Group.

vi. Emergency Operating Procedures Generation Package Guideline.

This document contains guidance for use in the development of the procedures generationpackage (PGP). It identifies for presentation or description in the PGP:

- technical guidelines
- writers guide for EOPs
- EOP verification
- EOP validation
- training

This document also presents a sample PGP.

b. Input Criteria

i. Writers Guide for EOPs

A writers guide for EOPs is a plant-specific document that provides instructions on writing EOPs, emphasizing the incorporation of human factors aspects. It can be either a separate document devoted specifically to EOPs or a broader document with a specific section devoted to EOPs.

The writers guide can be improved continually, based on feedback from operator training and experience. In addition to establishing sound writing principles, a well-developed writers guide helps to promote consistency among all EOPs independent of the number of EOP writers. It should cover the following topics:

- EOP format
- EOP organization

- EOP level of detail
- role of the EOP within the procedure system and network
- EOP content
- mechanics of style

ii. Generic Technical Guidelines

Generic technical guidelines are documents that identify the equipment or system to be operated and list the steps necessary to mitigate the consequences of transients and accidents. They provide sound engineering bases for the development of EOPs. Alabama Power Company will use the generic technical guidelines prepared by the Westinghouse Owners Group.

When addressing this element in the formulation of an EOP implementation plan, consideration of the following major items should be included:

- mechanics of conversion
- location of the plant-specific technical information
- how the plant-specific technical information was used
- the use of old EOPs
- documentation requirements
- use of the background information supplied with the technical guideline
- licensing commitments

The Westinghouse Owners Group has developed Rev. 0 of the generic technical guidelines. Rev. 1 of these guidelines is scheduled to be issued in August 1983 upon the approval of the Westinghouse Owners Group.

iii. Task Analysis

It is useful to the outcome of the CRDR that adequate attention be given to task analysis since it can integrate the operational, dynamic aspects of plant operation with the results of the survey and the operating experience review.

The task analysis is used to delineate the specific actions (automatic and manual) that must take place to accomplish system

functions. For the CRDR task analysis, the emergency procedure guidelines (EPGs) can be the technical bases for emergency operation.

The level of detail and types of information collected during task analysis is dependent on the focus of the CRDR. When addressing this element in the formation of a CRDR implementation plan, the following major items should be considered:

- focus and desired output of the overall CRDR
- availability of personnel to conduct task analysis
- definition of how the implementation plan can make use of industry and owners group task analysis.
- extent of training required by review personnel in the use of task analysis
- documentation necessary to use data from the task analysis in potential control room deficiencies.

2. Control Room Design Review Program Plan

a. General Guidelines

i. Summary of NTUAC Guidance on CRDR Implementation

The Control Room Design Review Implementation Guideline provides guidance to utilities for use in developing their implementation plans for control room design review (CRDR). The basic elements of an implementation plan for CRDR are described. The following elements are presented and discussed for each phase of the CRDR:

Planning Phase

- organization
- focus and extent of the review
- review team composition
- review team orientation
- use of EPGs and EOPs

Execution Phase

- survey
- operating experience review
- task analysis (system review)

Assessment Phase

- human engineering review principles
- assessment of HEDs
- effect of operator aids
- effect of current modifications
- prioritization of HEDs

Correction Phase

- enhancements and modifications
- procedure changes
- operator training

Effectiveness Phase

- validation
- reporting
- feedback
- upkeep

Documentation Phase

- document control
- working documents
- summary report

These elements were identified by the Nuclear Utility Task Action Committee (NUTAC) on CRDR. The elements presented are not to be construed as an exhaustive list but are considered to be generic to most plants. The elements should be reviewed by

the utility for individual applicability. The appendix of the NUTAC document includes an example of a CRDR implementation plan that illustrates how the elements described in the body of this guideline might be incorporated into a plant-specific document. This guideline document is offered as guidance only.

ii. Control Room Design Review Survey Guideline

This guide provides survey development guidance to utilities. It describes a method for generating checklists and questionnaires. These will be used in the CRDR human factors survey. The document contains an introduction, a section on definitions used, and a section on method. Appendixes contain examples of checklists and questions on NUREG-0700 guideline critiques. The definitions section provide definitions of those terms associated with the control room survey, as those terms are used in the document.

The survey development section describes the methodology used when screening guidelines for inclusion in a control room survey checklist. Each element of the methodology is associated with at least one appendix that delineates those specific NUREG-0700 Section 6 guidelines to which the screening criteria applies.

Appendix A contains example questions, checklists, and surveys. They represent a partial conversion of NUREG-0700, Section 6 guidelines into a set of achievable tasks.

Appendix B contains NUREG-0700, Section 6 criteria that are vague or unquantifiable. The criteria have been annotated with objective criteria.

Appendix C contains NUREG-0700, Section 6 criteria called "preferred designs." The criteria should be considered under the selection improvement phase of CRDR.

Appendix D contains those NUREG-0700 criteria that are predominately procurement specifications from MIL-STD-1472.

Appendix E contains those NUREG-0700 criteria that might degrade performance and an explanation.

b. Input Criteria

i. Operating Experience Review

This element is an activity within the CRDR meant to review the experience gained through actual plant operation. This activity

is to determine what problems have occurred (and recurred) during actual plant operation by questioning operating personnel and reviewing operational documents. This element of the CRDR is very effective in providing details concerning normal and abnormal operating modes. An operating experience review may consist of operator interviews, a review of plant trip logs, and, possibly, a review of Licensee Event Reports (LERs), INPO Significant Event reports (SERs), and Significant Operating Experience Reports (SOERs). The best use of LERs is as a means of confirming problems uncovered during the operating experience review. When addressing this element in the formation of a CRDR implementation plan, the following major items should be considered:

° availability of experienced operators

° type of interview technique to be used

° availability of skilled interviewers

° availability of reactor trip reports or plant significant event reports

ii. Control Room Survey

The control room survey is an explicit, well-defined control room design verification activity within the CRDR. The survey consists of comparing the characteristics of the existing control room with commonly accepted human engineering design criteria.

The major items to be considered when addressing this element in the formation of a CRDR implementation plan are the human engineering criteria to be used in the review and the extent of the survey. Default criteria are contained in Section 6, NUREG-0700, "Guidelines for Control Room Design reviews." Other applicable human engineering criteria may also be used to support the desired focus (see "Control Room Design Review Survey Development Guideline," also being developed by this NUTAC).

Whatever criteria are chosen, they should be referenced explicitly in the implementation plan. The following aspects of the survey should be considered:

° completeness of the survey criteria

° applicability of survey criteria to the focus of the CRDR

- training of the survey team(s) in the use of the selected criteria
- availability of equipment to measure the parameters necessary to meet the selected criteria
- auditability of the technique(s) used to apply the survey criteria
- documentation of survey results
- description of the specific operating areas to be surveyed

iii. Human Factors Engineering

During any design process, certain principles are used to define the specific characteristics of the item being designed. Due to the trade-offs made during the design process, the finished product may not comply with some desirable design criteria. During the survey phase of the CRDR, the existing control room is reviewed for compliance with commonly accepted human engineering design criteria.

These criteria can be found in many source documents, such as NUREG-0700, MIL-STD-1472C, etc. Aspects of the control room that do not conform to design guidelines are classified as HEDs. The next implementation element (3.3.2) deals with the assessment of HEDs to determine the potential seriousness of errors that might result from such discrepancies.

It can be useful during the assessment phase of the CRDR to keepin mind the human factors principles on which detailed survey guidelines are based (see "Human Engineering Review Principles," also being developed by this NUTAC.) During the control room survey, it is easy to lose sight of where the detailed survey criteria originated and why they were developed. The inclusion of basic human engineering principles in the development of the CRDR implementation plan serves as a reminder that the measurements and values contained in detailed guidelines are not to be interpreted as absolute, inflexible numbers.

When addressing this element in the CRDR implementation plan, the following major points should be considered:

- the level of detail of the principles
- the applicability of particular principles to the control room
- cross-reference of principles to the detailed survey guidelines

- the behavioral criteria used to judge that principle has been met
- the population to which the principle is to be applied
- the experience of review team members in interpreting human factors principles
- the completeness of the set of principles used

3. Regulatory Guide 1.97 Plan

a. General Guidelines

i. Westinghouse Design Basis to Respond to R.G. 1.97, Rev. 2

This design basis establishes criteria for determining the key and preferred backup variables to be monitored by the control room operating staff following the initiation of an accident. Criteria for determining the requirements for the instruments used to monitor these variables are also included to aid the system designer.

ii. NUTAC Guidelines for Accident Monitoring Instrumentation

The objective of this guidance is to assist utilities in their implementation of accident monitoring instrumentation, particularly in the relation of such instrumentation to R.G. 1.97. To meet this objective, the document contains guidance on the following:

- selection of plant-specific qualification criteria, ensuring that sufficient flexibility exists to accommodate plant-specific needs
- selection of plant-specific instrumentation for control room, in-plant and TSC/EOF monitoring
- example formats for R.G. 1.97 response
- summary of available industry positions of R.G 1.97 and related guidance documents

This document is scheduled to be issued in June 1983.

b. Input Criteria

i. Regulatory Guide 1.97, Rev. 2

This guide provides the variables to be monitored by the control room operating personnel during and following an accident. The guide also provides three categories of design criteria to aid the system designer in selecting and designing the instrumentation to monitor the variables.

ii. Alabama Power Company R.G. 1.97 Design Basis, Rev. 0

This design basis was prepared to address R.G. 1.97 prior to the issuance of NUREG-0737, Supplement 1. The design basis identifies the variables to be monitored by control room personnel during and following an accident as well as the instrumentation design criteria.

iii. Previous Alabama Power Company R.G. 1.97 Conceptual Design of Display System

This design basis was prepared to address R.G. 1.97 prior to the issuance of NUREG-0737, Supplement 1. The design basis identifies the variable to be displayed and the conceptual design and design criteria for the display system.

4. SPDS Plan

a. General

i. Guidelines for an Effective SPDS Implementation Program

This document provides guidance for use in plant-specific SPDS implementation programs. The document provides guidance for each of the following considerations:

° implementation planning

° formulation of design bases

° system design

° preparation of purchase specifications

° installation and testing

° training

° documentation

- integration
- hardware maintenance
- V & V of SPDS hardware and software

The document's appendixes provide the following additional information:

- Appendix A clarifies the definition of the SPDS in terms of its operational attributes
- Appendix B summarizes human factors considerations applicable to the SPDS
- Appendix C describes the relation of the SPDS to plant-specific critical safety functions (of the EOPs)
- Appendix D describes the evaluation of the SPDS in a control room environment and serves as a brief introduction to the component verification

By review of each topic addressed in these guidelines, a cohesive and efficient implementation program for the SPDS can be developed by each utility. This document is offered as guidance only.

b. Input Criteria

i. Critical Safety Functions

The critical safety functions are identified in the Westinghouse Owners Group Emergency Response Guidelines.

ii. Alabama Power Company SPDS Specification and System Conceptual Design

The SPDS specification and system conceptual design were prepared prior to the issuance of NUREG-0737, Supplement 1. The specification included the system design requirements and was sufficiently detailed to obtain vendor bids. The conceptual design outlined the interface of the specified SPDS with other plant systems and identified the design modifications within Alabama Power Company's scope of responsibility.

5. Emergency Response Facilities Plan

a. General Guidelines

i. NUTAC Guidelines for ERF Plan

These guidelines would serve as "input criteria" for an integrated plan of action to be developed by a separate subcommittee of the NUTAC on emergency response capability. As such, the ERF subcommittee's objective is to provide additional guidance to selected regulatory requirements related to the TSC, OSC, and the EOF, which would be of benefit to utilities. The objective is not to address the integration of these facilities with other emergency response initiatives in this document.

To meet the stated objective, the ERF subcommittee focused on the following:

- guidance to utilities on how to interpret NRC regulatory documents as they related to ERFs
- guidance for satisfying the intent of NRC regulatory requirements on ERFs as identified in 10 CRF 50.47 and Supplement 1 to NUREG-0737
- examples of alternatives for meeting the intent of NRC regulatory documents

The purpose of these guidelines is to provide general guidance for evaluating existing emergency response facilities capabilities and for planning and implementing capability not yet in place in light of Supplement 1 to NUREG-0737. The guidance contained in this document attempts to take into account the progress made by utilities in upgrading their emergency response facilities.

In that many of the requirements related to the emergency response facilities affect one or more of the facilities (i.e., TSC, OSC, and EOF), the subcommittee's guidance address specific regulatory requirements, while identifying unique considerations related to any of these facilities for that particular requirement. General guidance will be given for each regulatory requirement identified in Supplement 1 to NUREG-0737. The NUTAC guidance is scheduled to be issued in June 1983.

b. Input Criteria

i. Technical Support Center

The TSC is fully operational. The operational characteristics of the TSC will be considered in the development of any additional data systems for the ERFs.

ii. Operations Support Center

The OCS is fully operational. The operational characteristics of the OSC will be considered in the development of any additional data systems for the ERFs.

iii. Emergency Operation Facility

The EOF is fully operational. The operational characteristics of the EOF will be considered in the development of any additional data systems for the ERFs.

iv. Non-Utility Response Capability

The capability and needs of federal, state and local non-utility organizations will be considered in the development of any additional data systems for the ERFs.

v. ERF Design

The Alabama Power Company ERF design will be the basis to determine the compliance of the existing ERFs with the provisions of NUREG-0737, Supplement 1.

ATTACHMENT 4

Preliminary Farley ERC Integrated Implementation Plan and Schedule

I. Safety Parameter Display System (SPDS)

a. Status of Past and Current Activities

Subsequent to the issuance of NUREG-0696, Alabama Power Company formed a Task Force charged with the responsibility for the development of a conceptual design that addressses the control room, TSC and EOF data system provisions of NUREG-0696. This Task Force developed a specification, reviewed available vendors systems, determined procurement lead-times and implementation schedules, established a design basis, developed a list of plant parameters to be monitored, and assessed the impact of installation on existing plant systems. Additionally, Alabama Power Company was a participating member of the Nuclear Utility Task Action Committee (NUTAC) for SPDS. This SPDS NUTAC has been disbanded since the publishing of the NUTAC guidelines entitled "Effective SPDS Implementation Program" in January 1983.

Subsequent to the issuance of Generic Letter 82-33, Alabama Power Company formed an Acquisition Development Team to develop a conceptual design, purchase specification and schedules for an SPDS. The development of these specifications will consider guidance from the SPDS NUTAC, provisions of the upgraded Westinghouse Owners Group Generic Guidelines (i.e., critical safety functions) and the previously developed SPDS specification.

b. Preliminary Schedule

The preliminary SPDS schedule is shown in the Preliminary Farley ERC Integrated Implementation Schedule which is included in this attachment. In April 1983, Alabama Power Company began the review of the NUTAC guidance and the preparation of an SPDS action plan. This action plan will outline the scope of the known activities, assign responsibilities to APCo organizations and architect-engineers, and identify activities that may require vendor support. The SPDS action plan is essential to control and direct the SPDS activities.

The R.G. 1.97 design basis is scheduled to be finalized by August 1983 and will be used to complete the SPDS design basis. The SPDS design basis will be based on the R.G. 1.97 design basis and may identify additional plant parameters to be displayed. The finalized SPDS design basis and SPDS design concept will be used as input to finalize the CRDR program plan.

Following vendor presentations and the establishment of vendor/utility responsibilities, the SPDS specification will be finalized and issued for vendor bid. The finalization of this specification will require the identity of potential R.G. 1.97 modifications and alternatives for displaying the R.G. 1.97, Category 1 variables. All bids will be evaluated and recommendations prepared for review.

Alabama Power Company will review the SPDS vendor designs and bids considering the accompanying APCo scope of work, conceptual design, estimated costs and installation schedules. This review will also

consider the R.G. 1.97 design basis and display configuration, proposed resolution of human engineering discrepancies identified during the control room design review and additional data systems for the Emergency Response Facilities. This review will be iterative and may require the reordering of priorities, re-evaluation of various proposed alternatives, schedule changes, etc.

Following this review, Alabama Power Company will award the SPDS contract and develop an SPDS Implementation Plan and written Safety Analysis Report. Both the Implementation Plan and Safety Analysis Report are tentatively scheduled to be submitted to the NRC for post-implementation review. It is anticipated that the Implementation Plan will take 2 months and the Safety Analysis Report will take 3 months to complete.

The design of the SPDS will require a walkdown of each unit by the vendor and Alabama Power Company design organizations. The Unit 1 sixth refueling outage (September 1985) and Unit 2 third refueling outage (May 1985) have been scheduled for these walkdowns. The installation of the SPDS is scheduled to be completed over two refueling outages for each unit. Prior to operational acceptance, the emergency operating procedures will be modified as appropriate and all licensed operators will be trained in their use. The completion of the SPDS program is tentatively scheduled for the end of the eighth refueling outage (October 1988) for Unit 1 and the end of the fifth refueling outage (May 1988) for Unit 2. Every effort is being made to expedite this effort in a manner which will assure the quickest, practical SPDS installation and use.

c. 1983 Milestones and Submittals

Due to the dependence of one activity completion upon another, the delay in any activity may significantly affect this preliminary schedule. These tentative completion dates are based on 18-month refueling cycles, 6-week refueling outages and installation time of two refueling outages. The following significant activities have been planned:

ACTIVITY	DATE OR DURATION OF COMPLETION
° Finalize and issue SPDS specification for bids	November 1983
° Preparation of written SPDS safety analysis	An estimated 3-month duration. Completion date to be submitted with updated schedule.

° Preparation of specific SPDS implementation plan	An estimated 2-month duration. Completion date to be submitted with updated schedule.

d. Adequacy of Current Display Capability During Interval Needed to Complete Enhancements

Currently, the Farley plant computer and main control board instrumentation are being utilized to monitor parameters required during normal and emergency conditions. In May 1980 an Alabama Power Company Control Room Human Factors and Operations Review Team verified that display capability was suitable for selected emergency operating procedures. NRC staff personnel witnessed this walkthrough and assessed the control and display panel layout. The acceptance of the NRC review is documented in Supplement 4 of the Farley Unit 2 Safety Evaluation Report, dated September 1980.

II. Regulatory Guide 1.97 (R.G. 1.97)

a. Status of Past and Current Activities

Subsequent to the issuance of R.G. 1.97, Revision 2, Alabama Power Company established and implemented a program to address the provisions of R.G. 1.97. This program consisted of the following four tasks:

1) Identify licensing criteria.

2) Evaluate instrumentation compliance with licensing criteria.

3) Develop action plans to satisfy provisions of R.G. 1.97.

4) Implement action plans.

A schedule for implementation of this program was transmitted to the NRC in Alabama Power Company letter dated March 30, 1981.

During the implementation of this program, Alabama Power Company developed, in conjunction with Westinghouse, a R.G. 1.97 design basis for Farley Nuclear Plant. The Type A variables were determined from reviews of the emergency operating procedures. A preliminary review of Farley Nuclear Plant instrumentation for the Type A variables and each parameter identified in R.G. 1.97, Table 2 was completed and documented via evaluation sheets. Potential modifications were identified as well as exceptions to R.G. 1.97 taking into account the original Farley Nuclear Plant design and licensing bases. One of the design objectives was to integrate the implementation of R.G. 1.97 with the SPDS. A conceptual display system design was developed for the SPDS and R.G. 1.97 parameters.

Alabama Power Company is also an active participant in the ERC NUTAC whose subcommittee is developing industry guidelines for addressing R.G. 1.97. These guidelines are scheduled to be published in June 1983. APCo intends to utilize these guidelines in developing its final R.G. 1.97 program.

b. Preliminary Schedule

The preliminary R.G. 1.97 schedule is shown in the Preliminary Farley ERC Integrated Implementation Schedule, which is included in this attachment. Alabama Power Company is scheduled for May 1983 to initiate the development of the methodology and cost estimates for the seismic qualification of the main control board. Alabama Power Company will review the NUTAC guidance and the previously developed Alabama Power Company/Westinghouse R.G. 1.97 design basis and will prepare a final R.G. 1.97 action plan. This action plan will outline the scope of the known activities, assign responsibilities to APCo organizations and architect-engineers, and identify activities that may require vendor support. The R.G. 1.97 action plan is essential to control and direct the R.G. 1.97 activities.

The R.G. 1.97 design basis is tentatively scheduled to be finalized by August 1983 and used to complete the SPDS design basis. The R.G. 1.97 design will identify the plant parameters, their type and category, and basis for selection.

The R.G. 1.97 design basis will be discussed with vendors and vendor/utility responsibilities established. In parallel with the SPDS specification and bid efforts, a conceptual design and accompanying cost and schedule estimates will be developed for those activities that are the responsibiilty of Alabama Power Company (e.g., installation of electrical isolation devices and the separation of redundant instruments).

Alabama Power Company will review the conceptual designs and estimated costs and installation schedules for R.G. 1.97 for acceptability and feasibility. This review will also consider the SPDS design basis, vendor bids and display configurations, proposed resolution of human engineering discrepancies identified during the control room design review, and additional data systems for the ERF's. Such a review will be iterative and may require proposed alternatives, schedule changes, reordering of priorities, etc.

Following this review, Alabama Power Company will develop the R.G. 1.97 Implementation Plan and Compliance Report. The R.G. 1.97 Compliance Report will document the design basis of the Type A, B, C, D and E variables at Farley Nuclear Plant with supporting justifications. It is anticipated that the Implementation Plan will take 2 months and the Compliance Report will take 3 months to complete.

The design of the R.G. 1.97 will require a walkdown of each unit by the vendor and APCo design organizations. The Unit 1 sixth refueling outage (September 1985) and Unit 2 third refueling outage (May 1985) have been tentatively scheduled for these walkdowns. The installation of the R.G. 1.97 modifications is scheduled to be completed over two refueling outages for each unit in conjunction with the SPDS implementation. Prior to operational acceptance, the emergency operating procedures will be modified as appropriate and all licensed operators will be trained in the use of the instrumentation. The completion of the R.G. 1.97 program is tentatively scheduled for the end of the eighth refueling outage (October 1988) for Unit 1 and the end of the fifth refueling outage (May 1988) for Unit 2.

c. 1983 Milestones and Submittals

Due to the dependence of one activity completion upon another, the delay in certain activities may significantly affect this preliminary schedule. These tentative completion dates are based on 18-month refueling cycles and 6-week refueling outages. The preliminary R.G. 1.97 integrated schedule does not consider any modifications associated with instrumentation for a reactor vessel level system and core-exit

thermocouples. Such activities, as stated in letter dated March 10, 1983, will be addressed after an inadequate core cooling system has been operationally proven and the completion of a post-implementation review and approval for operation by the NRC. The following significant activities associated with R.G. 1.97 have been planned:

ACTIVITY	DATE OR DURATION OF COMPLETION
° Finalize R.G. 1.97 design basis	August 1983
° Establish plan for Category 1 display	October 1983
° Preparation of R.G. 1.97 implementation plan	An estimated 2-months duration. Completion date to be submitted with updated schedule.
° Preparation of R.G. 1.97 compliance report with justifications	An estimated 3-months duration. Completion date to be submitted with updated schedule.

d. Adequacy of Current Instrumentation During Interval Needed to Complete Enhancements

Currently, the Farley plant computer and main control board are being utilized to monitor parameters required during normal and emergency conditions. As discussed, the Task Force formed subsequent to the issuance of R.G. 1.97 reviewed the original design of the Farley instrumentation. Based on this review, Alabama Power Company believes that the original instrumentation design provides an adequate emergency response capability during the implementation of modifications to enhance these capabilities.

III. Control Room Design Review (CRDR)

a. Status of Past and Current Activities

During May 1980, Alabama Power Company conducted a Control Room Human Factors and Operations Review at the Farley Nuclear Plant - Unit 2. The basis of the review was NUREG CR-1270 (i.e., the Essex Report) and Mil-Std. 1472B. The review of the control room design for human factors and operations centered on the following:

a) Labeling of control devices, meters and annunciators

b) Control functions

c) Displays

d) Communications

e) Emergency procedure walk-throughs including use of emergency air breathing devices

f) Noise, lighting and traffic control

In general, the control room was found to promote effective operator actions; however, the review identified some human engineering improvements, which were categorized for either short or long term implementation.

The NRC Staff followed up the Alabama Power Company Control Room Human Factors and Operations Review with a five-day onsite control room audit as documented in NRC letter dated September 24, 1980. The NRC Audit included an assessment of control and display panel layout, annunciator design, labeling of panel components, and the usability and completeness of selected emergency procedures. The NRC audit was performed by means of detailed inspections of the control panels, interviews with operators, and observation and videotaping of operators as they walked through selected emergency procedures.

The Safety Evaluation Report for J. M. Farley Nuclear Plant dated September 1980, discussed the NRC audit and concluded that "in general we [the NRC Staff] found the control room [at Farley Nuclear Plant] was designed to promote effective and efficient operator actions." The Safety Evaluation Report did identify some human factors deficiencies and resolutions, which Alabama Power Company has implemented.

Alabama Power Company is also participating in the NUTAC for Control Room Design Review (CRDR). The CRDR NUTAC is scheduled to issue this industry guidance by the end of June 1983. Alabama Power Company intends to utilize this industry guidance in the development of its CRDR program.

b. Preliminary Schedule

The preliminary CRDR schedule is shown in the Preliminary Farley ERC Integrated Implementation Schedule, which is included in this attachment. The previous Farley Control Room Human Factors and Operations Review will be compared to the CRDR NUTAC guidance and a Program Plan will be developed to determine if any additional CRDR efforts are necessary. The finalized SPDS design basis, which considers the R.G. 1.97 design basis, and SPDS design concept will be considered in the CRDR Program Plan.

Subsequent to finalization of the CRDR Program Plan, a human factors vendor will be selected to assist Alabama Power Company in the finalization and implementation of the CRDR. The finalized CRDR program will be submitted to the NRC.

Alabama Power Company will assess the previous CRDR efforts and will determine the scope of additional control room design reviews that are necessary. Following NRC approval of the Alabama Power Company program, any additional CRDR efforts will be performed. Any human engineering discrepancies (HEDs) identified as a result of the additional CRDR efforts will be evaluated and resolved. The SPDS/R.G. 1.97 displays, emergency operating procedures, etc. will be considered as potential alternatives in the resolution of identified HEDs. For HEDs requiring plant modifications, Alabama Power Company will initiate conceptual designs and cost estimates and identify installation schedules.

A Summary Report will be prepared and submitted to the NRC after the resolution of all HEDs has been determined. Alabama Power Company will implement any required plant modifications during the subsequent two refueling outages scheduled for the end of the seventh refueling outage (April 1987) for Unit 1 and the end of the fourth refueling outage (December 1986) for Unit 2.

c. 1983 Milestones and Submittal Dates

These preliminary dates are based on receipt of industry guidance in May 1983, consideration of other Alabama Power Company licensing commitments, 18-month refueling cycles, 6-week refueling outages, and installation of any modifications during one refueling outage per unit. The following significant activities have been planned:

ACTIVITY	DATE OR DURATION OF COMPLETION
° Finalize CRDR program and submit to the NRC	October 1983

° Perform additional CRDR activities	Dependent upon assessment of previous activities
° Preparation of Summary Report	An estimated 3-month duration. Completion dates to be submitted with updated schedule.

d. Adequacy of the Current Control Room Design During the Interval Needed to Complete Enhancements

The Farley Nuclear Plant has been operating since 1977 and during this period no major human engineering discrepancy has been identified. A Control Room Human Factors and Operations Review has been conducted by Alabama Power Company. The NRC Staff performed a five-day onsite control room review and as stated in Supplement No. 4 to the Farley Safety Evaluation Report, the control room was generally found to promote effective and efficient operator actions. Some human engineering improvements were identified and subsequently implemented. Based on the previous reviews, implemented improvements, and the past effectiveness of the main control room, Alabama Power Company believes that the existing control room design is adequate during the implementation of any modifications to enhance these capabilities.

IV. Emergency Response Facilitiy (ERFs)

a. A Status of Past and Current Activities

In letter dated April 6, 1981, Alabama Power Company stated that an operational Technical Support Center (TSC) was established in the Farley Nuclear Plant Auxiliary Building, immediately north of the Unit 2 control room. The TSC has the capability to display and transmit plant status to those individuals knowledgeable of and responsible for engineering and management support of reactor operations in the event of an emergency condition. The TSC is habitable to the same degree as the control room for postulated emergency conditions. The Farley Nuclear Plant Emergency Plan has been revised to incorporate the role and location of the TSC. The TSC contains a set of P&ID's for each unit and technical manuals on selected major equipment. Other technical data are readily available from the document control facility in the plant Service Building which may be reached by intraplant phone from the TSC. Also available in the TSC are the Emergency Plan, Emergency Plan Implementing Procedures, Abnormal Operating Procedures, Emergency Operating Procedures and Unit Operating Procedures along with other general reference material.

Alabama Power Company has also established an Operational Support Center (OSC) functionally separate from the control room and other emergency response facilities. Communications have been provided from the OSC to the TSC, EOF and control room.

The permanent EOF was declared operational in October 1982 and complies with habitability provisions (structure, protection factor and ventilation protection) provided in Table 2 of NUREG-0696. EOF design and installation criteria were developed and used to verify acceptance of the EOF prior to its operational approval. Radiation and meteorological parameters have been provided in the EOF. The operational use and capabilities of the ERFs (OSC, TSC and EOF) were demonstrated during the 1983 Farley Nuclear Plant Emergency Exercise.

Alabama Power Company is also an active participant of the ERC NUTAC whose subcommittee is developing industry guidance in addressing the ERFs. This guidance is scheduled to be published in June 1983. Although certain radiation and meteorological parameters have been provided in the ERFs, additional data system criteria will be determined upon review of the ERC NUTAC guidance and in conjunction with parameter selection for R.G. 1.97 and the SPDS.

b. Preliminary Schedule

The preliminary ERF schedule is shown in the Preliminary Farley ERC Integrated Implementation Schedule, which is included in this attachment. Following the issuance of the ERC NUTAC guidance scheduled for

June 1983, Alabama Power Company will review this industry guidance and prepare a ERF action plan. This action plan will outline the scope of the known activities, assign responsibilities to Alabama Power Company organizations and architect-engineers, and identify activities that may require vendor support to enhance ERF instrumentation. The ERF action plan is essential to control and direct the ERF activities and provide additional data systems.

The R.G. 1.97 design basis is scheduled to be finalized by August 1983 and will be used to complete the ERF instrumentation design basis. The ERF instrumentation design basis will identify the instrumentation design criteria and the plant parameters to be displayed that are essential to the performance of the ERF.

In parallel with the SPDS specification and bid efforts, a conceptual design and accompanying cost and schedule estimates will be developed for those activities that are the responsibility of Alabama Power Company. The conceptual design estimated costs and installation schedules for ERF instrumentation will be reviewed by Alabama Power Company for acceptability and feasibility. This review will also consider the SPDS design basis and display configurations and the R.G. 1.97 design basis. Such a review will be iterative and may require proposed alternatives, schedule changes, reordering of priorities, etc. Following this review, Alabama Power Company will develop the ERF Implementaion Plan, which is scheduled to be completed in a 2-month duration.

The installation of the ERF instrumentation is tentatively scheduled to be performed during the implementation of the SPDS and R.G. 1.97 modifications. Prior to operational acceptance, the ERF procedures will be modified as appropriate and all pertinent personnel will be trained in its use. The completion of the ERF program is anticipated to be the end of the eighth refueling outage (October 1988) for Unit 1 and the end of the fifth refueling outage for Unit 2 (May 1988).

c. 1983 Milestones and Submittals

Due to the dependence of one activity completion on another, the delay in any activity may significantly affect this preliminary schedule. These tentative completion dates are based on 18-month refueling cycles and 6-week refueling outages. The following significant activities have been planned:

ACTIVITY	OF COMPLETION
° Operational ERF's	October 1982
° Develop ERF additional instrumentation design criteria	September 1983

° Prepare ERF data implementation plan	An estimated 2-month duration. Completion dates to be submitted with updated schedule.

d. Adequacy of Current ERF's During the Interval Needed to Complete Enhancements

As previously discussed, the ERF's are fully operational and the operational use and capabilities were demonstrated during the 1983 Farley Nuclear Plant Emergency Exercises. Alabama Power Company believes that the current design of the ERF's provide adequate emergency reponse capabilities during the implementaion of modifications to enhance these capabilities.

V. Emergency Operating Procedures

a. Status of Past and Current Activities

The Farley Nuclear Plant Emergency Operating Procedures have been revised to incorporate the post-TMI recommendations identified in IE Bulletins 79-05, 79-05A, 79-06, 79-06A and 79-06A, Revision 1. These recommendations included guidance for accidents involving a loss of coolant through a stuck open pressurizer relief or safety valve that subsequently resets or is isolated, and directing the operator to consider thirteen parameters (rather than one or two) as the basis for operator action.

Selected emergency procedures were reviewed by Westinghouse Electric Corporation and the NRC Staff as described in Section 22.2, Item I.C.1 of the Farley Safety Evaluation Report, Supplement 4, dated September 1980. It was concluded that the selected procedures were generally consistent with the generic guidelines for Westinghouse plants; however, minor review to the procedures were incorporated by Alabama Power Company based on the NRC reviews. Alabama Power Company met with the NRC Staff at the Zion simulator in Zion, Illinois to walk-through the loss of coolant, steam generator tube rupture, and safety injection emergency procedures during simulated accidents. The procedures were further revised based on the results of the simulations and the Westinghouse comments that had been received.

Subsequent to the simulator walk-throughs, the NRC Staff observed Alabama Power Company operators as they walked through the small-break loss-of-coolant accident procedure in the Farley control room. As a result of the walk-through and final review, a few minor changes were suggested by the NRC. These changes were incorporated into the procedures by Alabama Power Company.

Alabama Power Company is represented on the Westinghouse Owners Group Procedures Subcommittee which is involved in the development of a generic emergency procedure program, generic procedure review and resolution of NRC questions regarding emergency procedures. Through the subcommittee's efforts, the Westinghouse Owners Group has submitted Revison 0 of the Emergency Response Guidelines (ERGs) to the NRC. Revision 1 of the ERG's is scheduled for transmittal in August 1983 upon Westinghouse Owners Group approval.

Additionally, Alabama Power Company has reviewed the Emergency Operating Procedures Implementation Assistance (EOPIA) guidelines developed by the EOPIA industry working group. A draft plant-specific writer's guide has been developed for the Farley Nuclear Plant from this review.

b. Preliminary Schedule

From a review of draft industry documents and previous experience with writing plant-specific emergency procedures, the preliminary EOP schedule is shown in the Preliminary Farley ERC Integrated Implementation Schedule, which is included in this attachment. The EOP action plan and the procedure generation package (PGP) are tentatively scheduled to be completed in June 1983. This plan will outline the scope of the known activities, assign responsibilities and identify activities that may require vendor support. The PGP will include the writer's guide, a description of the program for validation of the EOPs, and a brief description of the program for training operators on emergency operating procedures.

Following finalization of the PGP and EOP action plan, the PGP will be submitted to the NRC for review. Alabama Power Company will develop the plant-specific procedures based on generic guidelines and subsequently conduct EOP validation. The validated emergency operating procedures will be implemented for use following training of all licensed operators. The emergency operating procedures will be revised as appropriate prior to operational acceptance of any modification that addresses R.G. 1.97, SPDS and CRDR.

c. 1983 Milestones and Submittals

From a review of draft industry documents and previous experience with writing plant-specific emergency procedures, the following significant activities have been planned:

ACTIVITY	DATE OR DURATION OF COMPLETION
° Submittal of Procedure Generation Package	July 1983
° Submittal of Rev. 1 Generic Technical Guidelines	August 1983 (predicated upon WOG approval)
° Preparation of upgraded EOPs	1st Quarter 1984
° Training for upgraded EOPs	2nd Quarter 1984

d. Adequacy of Current EOPs During Interval Needed to Complete Enhancements

The Farley Emergency Operating Procedures have been revised to incorporate the post-TMI recommendations. In addition, selected emergency operating procedures have been revised to incorporate Westinghouse and NRC comments. The NRC has observed the Farley operators walk-through selected emergency operating procedures at the Zion simulator and Farley control room.

The NRC's acceptance of these procedures is documented in the Farley Safety Evaluation Report, Supplement 5, dated March 1981, and provides further evidence of the adequacy of the Farley Emergency Operating Procedures during the implementation of modifications to enhance these capabilities.

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